

REMARKS

Initially, the applicant would like to thank the Examiner in charge of the application, Examiner Gilbert Y. Lee, and Primary Examiner Vishal Patel, for the courteous and helpful interview extended to applicant's undersigned representative. The substance of the interview is discussed in detail below.

For convenience, the headings used in the Action will be used in the present response.

Specification

The Office has objected to the brief description of Fig. 2. The Office notes that the brief description of Fig. 2 is that it is ". . . a partial side view in which an inner circumferential surface of the seal ring. . ." However, according to the Office's review of Figs. 1 and 5, the description of Fig. 2 should be that it is "a partial top or bottom view in which an axial surface of the seal ring is developed".

The brief description in the specification has been amended to identify Fig. 2 as a partial plan view. This description is believed to be an accurate description of Fig. 2 and is consistent with the description of Fig. 5 as being a partial plan view.

Removal of the objection to the specification is believed to be in order and is respectfully requested.

MAY 24 2007

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RESPONSE UNDER 37 C.F.R. §1.111

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Claim Objections

Claim 3 is objected to relating to the recitation "(a1-L)" in line 6. The Office states that the reference characters a1 and L are "claimed" in claim 2, but are not "claimed" in claim 1, from which claim 3 depends. This objection is believed to be overcome by the above amendments to claim 3 to recite that a1 is the thickness of the seal ring and L is a dimension between an outermost point of the first deepest inclined portion in the radial direction and the outer circumferential face of the seal ring (as recited in claim 2).

Claims 4 and 6-8 are objected to because the Office does not understand what is intended by the recitation in these claims of "a number of the concave portions is in the range from 4 to 16." It is believed that this objection is overcome by the above amendments to claims 4 and 6-8 to recite --a number of the ~~concave portions~~ concaves included in said contact side face of the seal ring is in the range from 4 to 16-- ("concave portions" in claim 1 has been amended to --concaves--).

Claim Rejections - 35 USC § 112

Claims 2, 3 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite. The Office's position is that it

is unclear from where the angles recited in the rejected claims are referenced.

Claims 2, 3 and 5 have been amended by inserting--measured with respect to a plane perpendicular to the axial center of the seal ring-- after "angle" in each of the claims. This amendment, which is supported by the drawings and the description of the drawings in the specification, is believed to provide a reference for the angles.

Removal of the 35 U.S.C. 112, second paragraph, rejection of the claims is believed to be in order and is respectfully requested.

Claim Rejections- 35 USC § 102

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Dickey et al. (U.S. Patent No. 6,189,896) (hereinafter: "Dickey").

The above-mentioned interview included a clarification of the rejection. In the Action, the Office takes the position that each of the limitations of claim 1 is shown (apparently) in Fig. 3 of Dickey. The Action refers to certain components "A", "B", "C" and "D" of the seal ring of Dickey as being shown in Fig. 3. However, the components of Fig. 3 of Dickey are not labeled "A", "B", "C" and "D" and applicant was unable to understand from the description

in item (4) of the Action on pages 3 and 4 what parts of the seal ring shown in Fig. 3 are "A", "B" and the like.

Prior to the interview, Mr. Gilbert provided an "Examiner's Attachment" in which components "A", "B", "C" and "D" were identified in Fig. 3 of Dickey (a copy of the attachment was also enclosed with the Interview Summary dated May 3, 2007, issued by the Office). During the interview, applicant's undersigned representative understood the Examiners' position concerning claim 1 of the application reading on the seal ring shown in Fig. 3 of Dickey (as explained in the Action) to relate to the terminology "portion" and "portions" used in claim 1 and, particularly, the terminology "concave portions", "converging portion" and "column portion". The Examiners stated that this terminology can be interpreted very broadly because the term "portion" or "portions" is vague.

The Examiners did not suggest specific amendments to claim 1 to avoid the 35 U.S.C. § 102 rejection. They indicated that claim 1 must be amended to provide a more precise definition of the seal ring of the invention.

Claim 1 has been amended to change the terminology "concave portions" to --concaves--. Claim 1 has also been amended to precisely recite limitations relating to "concaves" and "columnar

surfaces". I.e., amended claim 1 recites that "a plurality of circumferentially extending concaves are provided along an inner circumferential part of the contact side face and separated from each other along the circumference of the side face by columnar surfaces" and that "each end of each of said plurality of circumferentially extending concaves converges with a surface of the side face to form a converging point, adjacent converging points being separated from each other by said columnar surface". Amended claim 1 also includes the limitations that "each of said columnar surfaces extends radially outwardly from a line extending between adjacent converging points to an outer circumferential edge of the side face"; that each of the concaves is formed by a first deepest inclined portion provided in the inner circumferential part of the side face of the seal ring, the first deepest inclined portion being provided to reduce a thickness of the seal ring toward an inner circumference of the seal ring; and that a second inclined portion is provided on an inner circumferential side of each columnar surface and extends radially inwardly from said line extending between adjacent converging points to the inner circumferential edge of the side face of the seal ring to reduce the thickness of the seal ring toward the inner circumference of the seal ring. The amendments to the claims are believed to find

support in the drawings of the seal ring of the present invention as described in the specification.

Dickey fails to disclose a seal ring meeting each of the elements of the seal ring of the present invention as now recited in claim 1 of the present application. Removal of the 35 U.S.C. 102(b) rejection of claim 1 is believed to be in order and is respectfully requested.

Claim Rejections - 35 USC § 103

Claims 2-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dickey. The propriety of this rejection depends on the 35 U.S.C. 102(b) of claim 1 over Dickey. Since the 35 U.S.C. 102(b) rejection of claim 1 has been overcome, removal of the 35 U.S.C. 103(a) rejection of claims 2 to 8 is in order and is respectfully requested.

The foregoing is believed to be a complete and proper response to the Office Action dated January 24, 2007, and is believed to place this application in condition for allowance. If, however, minor issues remain that can be resolved by means of a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number indicated below.

In the event that this paper is not considered to be timely filed, applicant hereby petitions for an appropriate extension of

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time. The fee for any such extension may be charged to our Deposit Account No. 111833.

In the event any additional fees are required, please also charge our Deposit Account No. 111833.

Respectfully submitted,

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